Name: Key Period: _____

QCA#3 Review Day 2

Simplifying Expressions:

1. Distribute (multiply)

$2(x+6) - 4(x+2)$

$2x+12-4x-8$

2. Simplify: 1) DISTR 2) CLT

$-3(x+2) - 2(x+5)$

$-3x-6-2x-10$

$-5x-16$

3. Solve for b (Isolate the variable)

$A = bh$

$\frac{A}{h} = \frac{bh}{h}$

$\frac{A}{h} = b$

$b = \frac{A}{h}$

Linear :

4. Given $-8x + 4y = 7$, what is the slope of the line? (A = −8, B = 4, C = 7)

$m = \frac{-A}{B} = \frac{-(-8)}{4} = 2$

convert to $y = mx + b$

$-8x + 4y = 7$

$+8x \quad +8x$

$\frac{4y}{4} = \frac{8x}{4} + \frac{7}{4}$

$y = 2x + \frac{7}{4}$

5. Write the linear equation that passes through (6, -4) and (8, 0)

x	y
6	−4
8	0

(2 over, 4 up)

$m = \frac{\Delta y}{\Delta x} = \frac{4}{2} = 2$

pt.-slope form: $y - y_1 = m(x - x_1)$

$y - 0 = 2(x - 8)$

$y = 2x - 16$

OR on CALC: STAT EDIT; STAT CALC 4: LinReg

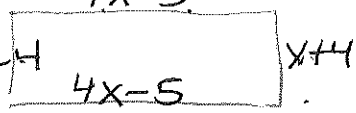
Geometric Applications:

$P = 2l + 2w$

6. Find the perimeter of a rectangle with a length of (4x -5) and width of (x +4).

CLT

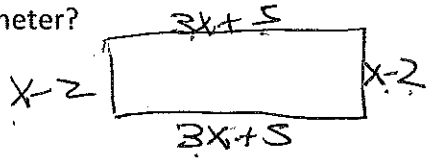
$10x - 2$



7. If a rectangle has a length of (3x +5) and a width of (x – 2), what is it's perimeter?

$P = 2l + 2w$

$8x + 6$



Domain and Range:

8. What is the range of the function $f(x) = -2x + 10$ when the domain is {-4, -1, 0, 2}? (y-value, x-value)

$f(-4) = -2(-4) + 10 = 18$

$f(-1) = -2(-1) + 10 = 12$

$f(0) = -2(0) + 10 = 10$

$f(2) = -2(2) + 10 = 6$

$\{6, 10, 12, 18\}$

on calc: y= 2nd table

9. What is the range of the function $f(x) = 3x^2 + 4$ when the domain is {-4, -1, 0, 3}

$f(-4) = 3(-4)^2 + 4$

52 7 4 31

$\{4, 7, 31, 52\}$

Solutions of Inequalities

10. Jessie bought items for his pool party. He purchased x bags of chips at $3.50 each and y liters of soda at $2 each. He had less than $30 to spend. What is a reasonable number of bags of chips and liters of soda that Jessie purchased? (rate, coefficient, +)

$3.50x + 2y < 30$ (chips, soda)

a. (6,6) $3.50(6) + 2(6)$; $33 < 30$ NO

b. (5,5) $3.50(5) + 2(5)$; $27.50 < 30$

c. (7,5) $3.50(7) + 2(5)$; $34.50 < 30$ NO

d. (4, 8) $3.50(4) + 2(8)$; $30 \not< 30$ NO

***Systems of Equations*:**

11. Match the systems to their solution

a. $\begin{cases} x+3y=8 \\ x-y=12 \end{cases}$

b. $\begin{cases} 4x+3y=6 \\ 3x+5y=-1 \end{cases}$

c. $\begin{cases} 2x-y=9 \\ -3x+y=1 \end{cases}$

1. (-10, -29) $(-10)+3(-29) \neq 8$

2. (11 , -1) $4(-10)+3(-29) \neq 6$

3. (3 -2) $2(-10)+(-29)=9$ ✓
$-3(-10)+(-29)=1$ ✓

12. Write the system that could be used to compare the following t-shirt companies:
*T-Right costs $40 for set-up and $2.50 for each extra shirt
*Shirts-R-Us costs $60 for set-up and $1.50 for each extra shirt

C: cost
x: t-shirts

T-Right: $C = 2.50x + 40$

Shirts-R-Us: $C = 60 + 1.50x$

Quadratic Functions

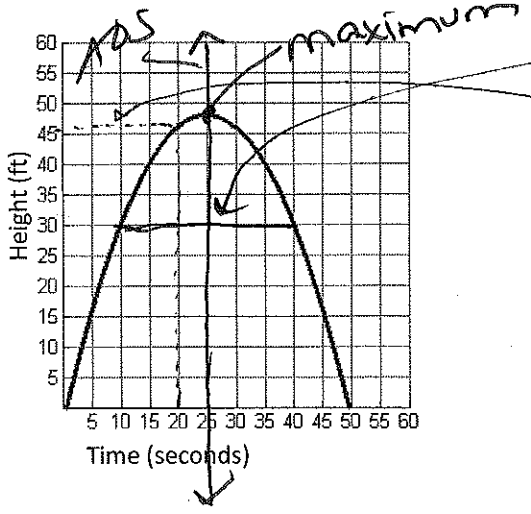
'a' in $y = ax^2 + bx + c$

13. Describe the difference of a quadratic function with a positive coefficient of x^2 to a negative one.
If 'a' is positive, the parabola opens up ↗
If 'a' is negative, the parabola opens down (frown) ↘

14. Which of the following quadratics would be wider? $y = -3x^2$ or $y = \frac{1}{3}x^2$
Greater |a| → narrower

15. What is the vertex of the parabola whose function is $y = -x^2 + 4x + 5$? (2, 9)
$x = \frac{-b}{2a}$ $x = \frac{-(4)}{2(-1)}$ $x = 2$ $y = -(2)^2 + 4(2) + 5$ $y = 9$

16. The graph shows the flight of a rocket:



a. How much time elapses while the rocket if 30 feet or more above the ground?
40 sec − 10 sec = 30 sec

b. About how high will the rocket be after 20 seconds?
≈ 46 feet

c. How long did it take to reach it's maximum height?
25 sec

d. How long was the rocket in flight?
50 seconds
until it lands again